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ABSTRACT

A study compared the oral and written language concepts of preschoolers from low- and middle-income homes. Subjects, 33 4-year-olds from 3 separate Head Start programs and 31 4-year-olds from three different private schools, were administered 9 informal language assessments in the fall and again in the spring. Parents of the subjects were interviewed. Results indicated that: (1) children from middle-income homes outperformed their low-income counterparts in knowledge of language on eight of the nine variables in the fall; (2) in the spring, the performance of middle-class preschoolers was superior to their low-income cohorts on all nine variables; (3) the percentage of the low-income subjects in the top quartile dropped from 25% in the fall to 7% in the spring; (4) the percentage of the low-income subjects in the bottom quartile rose from 71% in the fall to 92% in the spring; (5) low-income parents reported fewer books, infrequent reading to children, and virtually no encouragement for engaging in reading and writing activities; (6) four of the middle-income subjects and one lower-income subject were able to read; and (7) differences in subjects' knowledge of identifying environmental print and recognizing readable print were not significant. Findings suggest that even as early as 48 months of age, children from low-income homes are at a distinct disadvantage when compared to their middle-class peers on many language concepts, and fall further behind them by the end of preschool. (Two tables and one figure of data are included; 27 references are attached.) (RS)

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Theoretical Framework

A vexing problem that continues to plague American schools is the inevitable failure of children from economically poor families to acquire literacy skills at levels comparable to their middle-class counterparts. Although programs such as Head Start and Title I have shown some effectiveness, none has been successful in bringing this population out of the bottom quartile of achievement in reading and writing (Berlowistz & Durand, 1980).

In the past two decades considerable evidence has been accumulated to indicate that becoming literate may be linked to the early experiences that children have with print prior to entering formal education (Bissex, 1980; Clay, 1975; Ferreiro & Teberosky, 1982). Concepts about language acquired during the early years are believed to function as schemata with which children interpret instruction they receive once they begin school (Chomsky, 1971; Ferreiro & Teberosky, 1982; Read, 1971; Teale, 1986). Trying to tackle the problem of illiteracy among the poor seems futile without clear and specific information about the written and oral language schemata these children possess prior to entering school. Nonetheless, investigations into the literacy development of young children from economically poor homes have been surprisingly limited.

In a study that investigated the language knowledge of kindergartners of low- SES, Purcell-Gates (1989) noted that the children appeared to hold a very restricted view of written language. The author suggested that limitations found among these economically poor kindergartners reflected an inadequate exposure to print during pre-instruction years. From this premise, children from low-income families appear to become at-risk of learning to read and write before they ever begin school.

In contrast, Teale (1986) investigated the literacy experiences of 24 low-income preschoolers and concluded that although there was an absence of story book reading in these homes, economic circumstances did not in any way restrict the amount or richness of literacy experiences. His interpretations corroborate the work of others who have investigated

literacy development among low-income populations (e.g., Heath, 1983; Taylor & Dorsey-Gaines, 1988). However, virtually none of these investigations of low-income children's early language knowledge have involved a comparative group.

In order to alter the plight of economically poor children, a clear understanding of any language limitations that may be unique to this population are needed. Hence, the current study was conducted to address a serious void in the literature by comparing the oral and written language concepts of preschoolers from low-and middle- class homes.

Applying Mason's model (1984) of early reading acquisition, measures were selected to assess children's concepts about the function of print as well as the form and structure of print. Accordingly, these two strands reflect the initial concepts needed for understanding reading. Function of print is described by Mason as attempts to read words in print using their meanings. This includes the ability to recognize signs, labels, names, and labeled food products. The second strand, form and structure of print, is an explicit awareness that letters have distinct forms and can be related to word sounds. This includes knowledge of letter names, letter sounds, and concepts about combining sounds to form words.

Methods

Subjects- The study was initiated with sixty-four children drawn from six separate preschools. Each preschool was located at a separate site in a mid- size Midwest city. The preschools were selected because of the particular populations they served. Three Head Start preschools were identified which served families at 100% poverty level and three tuition-based preschools were selected which served children from middle-income homes. The literacy experiences of the preschoolers in all of the programs were similar. There were whole class story book readings each day. The three Head Start classrooms displayed the calendar and alphabet, while these displays were found in only one of the middle-class programs. None of the programs planned activities that encouraged children to use print. Likewise, the dramatic play areas were virtually void of literacy artifacts (e.g., no telephone books or writing tablets, no real food products

displayed, etc.).

Only four-year-olds- who spoke English as their primary language were identified to participate in the study. Using a table of random numbers, children's names were selected from each of the preschool's class lists. Thirty-three children from three separate Head Start programs and thirty-one children from three different private preschools were administered language assessments in the fall, with 29 and 31, tested, respectively, in the spring.

Procedures- Nine informal language measures were individually administered to the preschoolers in the fall and, again, in the spring. The informal assessments represented variables that had been reported in earlier research to be linked to children's literacy development (Bryant & Bradley, 1985; Chall, 1967; Ehri, 1983; Lavine, 1977; Liberman, et al., 1974; Morris & Perney, 1984). The nine tasks measured children's understanding of 1) letter names, 2) letter-sound associations, 3) the sophistication of spellings in dictated words,
4) blending syllable segments into words, 5) blending phoneme segments into words, 6) reading environmental print, 7) identifying literacy objects by name, 8) describing the function of literacy objects, and 9) identifying readable print.

Knowledge of letter-names was assessed by asking children to identify the names of lower case letters when presented individually on 3 x 5 cards (total points=26). In a similar task, knowledge of letter-sound associations was measured by asking children to identify the sounds for the lower case letters presented on 3 x 5 cards (total points=24).

Preschoolers' early spelling attempts were measured using a modified version of a task developed by Kontos and Mackley (1985). Children were read seven utterances (each a word, phrase or short sentence), and asked to "write down on paper in any way that will help you to remember them". Each of the seven items were scored from zero to eight (total points=56) for sophistication of spelling production using criteria suggested by Clay (1975).

Two tasks were used to measure preschoolers' awareness of the units of sounds in words. In the first task, children's ability to blend syllable segments to form words was assessed (total points=5). Following a demonstration, the children were asked to identify a word after being presented with verbal utterances consisting of two isolated syllables (e.g., /ze/ /bra/). In a similar task, children's ability to blend phoneme segments into words was measured (total points=5). The children were asked to identify the word after being presented with verbal utterances consisting of two isolated phonemes (e.g., /t/ /ea/).

Knowledge of environmental print was assessed by showing children ten 4 x 5 color photographs of logos that appeared in context (e.g., a stop sign). The child was shown each photograph individually and asked, "Tell me what this says. Point to where it say that". The logos were selected from reports by other authors (e.g., Masonheimer, et al., 1984) of environmental print frequently recognized by prereaders (total points=10).

Children were also shown 5 x 8 cards with strings of letters or scribbles, sometimes including numbers, printed on each card (e.g., I, MMM, 57M8R, etc.). When the examiner showed each card, she would ask, "Is this a word that big people read?" (total points= 15). The task was developed to examine children's ability to differentiate among printed forms and determine what type of print constitutes a word people can read (Lavine, 1977; and Ferreiro and Teberosky, 1982).

Preschoolers were also assessed on their knowledge of identifying the names and functions of literacy objects. Only objects which displayed print (e.g., a receipt, a telephone book, etc.) were selected. Children were handed each object one at a time and asked, "What is this? (total points=10). What do people use this for?" (total points=10).

To determine if any of the preschoolers were readers, all subjects were shown isolated words printed on 3 x 5 cards. Fifteen words were culled from the word lists of popular pre-primer basals. Each child was shown a word and asked to tell what it says (total=15). If a child could not correctly identify any of the first five words the assessment of word recognition was stopped.

Parents were interviewed for the purpose of examining the literacy experiences in which preschoolers are likely to be involved. Parents were asked about the frequency and practices used in story book reading, the literacy materials that children have free access to, and the type of reading and writing experiences in which their children are encouraged to engage (total points=65).

Analysis- Frequencies were conducted on all variables. In addition, independent t-tests were administered to determine if significant differences occurred between the two groups. The overall literacy performance of subjects was also examined by totaling scores on the nine variables and rank-ordering all preschoolers in ascending order. In a post hoc analysis, subjects who were beginning to read (identifying at least four isolated words) were removed from the two groups and t-tests were repeated to determine if significance would remain stable.

Results

By comparing the differences between the means, at the fall assessment, four-year-olds from middle-class homes outperformed their low-income counterparts in knowledge of language on eight of the nine variables. Table 1 shows the means and standard deviations. Statistically significant differences, favoring middle-class preschoolers, were found at the .01 level for children's knowledge of 1) letter names, 2) blending syllables into words, 3) blending phonemes into words, 4) identifying literacy objects by name, and 5) explaining the function of literacy objects. Middle- class preschoolers were also significantly more advanced than their low- SES cohorts in knowledge of letter sounds at the .05 level.

Figure 1 illustrates that when the overall fall scores of children on all nine variables were totaled and ranked in ascending order, seventy-five percent (12 out of 16) of the preschoolers in the lowest quartile represented four-year-olds from poor socioeconomic homes. Likewise, only 25% (4 of the 16) of those who ranked in the top quartile, were from low-SES backgrounds. Together, these data suggest that even by age four, most children from low-socio-economic environments are at a distinct disadvantage when compared to their middle-class counterparts on knowledge of early

language concepts. Furthermore, this distinction becomes even more profound by the end of preschool.

In the spring, the performance of middle- class preschoolers was superior to their low-income cohorts on all nine variables; statistically significant differences were found among seven of the variables (.01 level). Table 2 illustrates the means and standard deviations. Statistically significant differences favoring the middle-class preschoolers were found for 1) letter names, 2) letter sounds, 3) sophistication of spelling productions, 4) blending syllables into words, 5) blending phonemes into words, 6) identifying literacy objects by name, and 7) explaining the function of literacy objects.

Therefore, statistical significance remained stable or improved (i.e., knowledge of letter names) for the same language variables reported in the fall as in the spring. One additional variable, invented spelling, was reported as significant by the end of preschool. However, differences in preschoolers' knowledge of identifying environmental print and recognizing readable print were never found to be significant. Nonetheless, by reviewing all the means of the two groups a discouraging trend becomes evident. Despite preschool experience, the gap between the average performances of low-and middle-class preschoolers increased on all language variables.

When the overall spring test scores of children on all nine variables were totaled and ranked in ascending order, the poor performance of low-income preschoolers was painfully clear. Although in the fall, 25% of the scores in the top quartile had been earned by low-income preschoolers (four out of 16), by spring this percentage had dropped to 7% (one out of 15). Likewise, although preschoolers from low- SES represented the majority of scores in the lowest quartile (71%) in the fall, by spring, this percentage increased dramatically to 92 percent. Hence, by the end of preschool, economically poor children were at an even greater disadvantage as compared to their middle-class peers in understanding written and oral language.

In the assessment investigating how parents foster early literacy experiences among children a statistically significant difference was found

between the questionnaire responses of the two groups on the total score, t (62) = -3.43, p= -.001. Indeed, alarming voids were also noted in the homes of low-SES families with reports of fewer books, infrequent reading to children, and virtually no encouragement for children to engage in reading and writing related activities.

It was also found that four of the children from the middle-class were beginning to read by correctly identifying four or more pre-primer words presented in isolation. Two of these children successfully identified as many as fourteen of the fifteen words. While one early reader was also found among the low- SES group, this child was able to identify only four of the isolated words. Nonetheless, when these "early readers" were removed from the analysis and t-tests were repeated, statistical significance remained stable for differences in preschoolers' language knowledge, with the exception of the fall assessment on letter sounds (revised p= .09).

Discussion

The initial strand in understanding reading is when young children try to read words in print by relating them to their meanings (Mason, 1984). By examining children's knowledge of environmental print we found no differences between the two groups at either testing period. Although most agree that identifying logos does not lead to reading decontextualized print (e.g., Masonheimer, Drum, and Ehri, 1984; Heibert, 1978), the role of environmental print in emergent literacy remains unresolved. Goodman (1986) asserts that "the development of knowledge about print embedded in environmental settings is the beginning of reading development..." (p. 7). Children as young as two-years-of age have been noted to identify familiar logos, such as the McDonald's sign (Harste, Woodward, & Burke, 1984; Hiebert, 1978). Nonetheless, it appears that these prereaders read the context rather than the print (Mason, 1980). The findings presented in this paper indicate that preschoolers from low-socioeconomic backgrounds are as equally adept as their middle-class age mates in identifying contextualized print. Perhaps then, these findings may indirectly suggest that exposure to environmental print, in and of itself, does not enhance children's literacy development. Instead, becoming a reader begins when children understand

that people read words not by the context, but rather because of the particular letter strings and their corresponding sounds. Hence, drawing young children's attention to the alphabetic symbols and sounds in contextualized print found in the environment would seem prudent.

It would seem that a more important aspect of the function of print was tapped by assessing preschoolers' ability to identify the names and functions of literacy objects. Significant differences were noted between the two groups on assessments in the fall and spring of preschool. This appears noteworthy, since some authors have asserted (e.g., Teale, 1986; Heath, 1983) that the homes of children from low- SES are equally rich in literacy experiences. Accordingly, literacy activities are an essential part of a family's social process. Therefore, encounters with newspapers, receipts, maps, and other literacy objects are derived from real purposes that can be found in any home. Our findings, however, raise issue with these claims. Children of low- SES were less likely than their middle-class cohorts to identify or describe the functions of ten literacy objects. It seems unlikely that the low- SES homes are void of these artifacts given evidence presented by other researchers (e.g., Teale, 1986; Heath, 1983). Could these differences reflect a limitation in the parent-child interactions associated with literacy objects? A restricted behavior has been reported in the quality and extent of verbal interactions among parents and children of low-SES during story book reading (e.g., Snow & Ninio, 1986). Perhaps this phenomenon may also serve to explain four-year-olds' less developed knowledge in identifying the names and functions of literacy objects.

On the other hand, some might argue that the artifacts selected for the current study simply favored the experiences of children from an economically stable environment (e.g., menu, map). This explanation, however, fails to account for the consistent trend found between the two groups. That is, when the means were reviewed for each of the ten items, the pattern was the same, always favoring middle-class preschoolers. Perhaps how parents engage their children with non-book like printed materials may explain this difference. If so, meaningful interactions among

family members with literacy objects may play an important role in promoting understanding of the function of print. Recently, efforts to introduce literacy artifacts into the dramatic play areas of early education programs have been found to enhance children's literacy development (Newmann & Roskos, 1990).

Concerning the strand of form and structure of print, Ehri and Wilce (1985) suggest that knowledge of the letter names and sounds, rather than exposure to environmental print enables children to process written language. Notable differences were reported between the two groups on children's explicit knowledge of letter names and sounds. The authors suggest that these differences, along with other findings reported in this paper, likely reflect middle-class children's more extensive experience with print and, therefore, result in a richer network of associations with letters.

Pursuing this argument further, it was not surprising to find that four-year-olds from low- SES were comparatively, at a disadvantage when asked to blend syllables and phonemes into words. Although these tasks were difficult for all preschoolers, children from middle- class environments were considerably more sensitive to the sound sequences in words. Hence, this distinction also supports the notion that the literacy experiences of middle-class children provide a richer familiarity with printed language, than the experiences provided to their low-income cohorts.

At the beginning of preschool, no difference was noted in children's ability to spell dictated words (e.g., cat, little red car, etc). However, by the end of preschool significant differences were reported. Because of the low scores found among both groups in the fall, the invented spelling task does not appear to tap knowledge of written language concepts among very young children. A review of the scores indicates that most preschoolers, at the beginning of preschool, could only produce letter-like symbols. By the end of preschool, children, particularly those from middle-class, were beginning to use alphabetic letter strings. As the research suggests (e.g., Clay, 1975, etc.) children have a natural propensity to write and will advance to more sophisticated forms of writing by being

encouraged to use print in their early experiences. Therefore, are their generally limited opportunities and encouragement for low- socio-economic children to engage in writing?

Regarding the last variable, identifying readable print, no differences was found between the two groups at either the fall or spring testing. That is, preschoolers from both socio-economic groups demonstrated the same capability in determining the type of graphic units that constitute readable words. As Lavine (1977) had reported, all four year-olds could differentiate among scribbles and separate pictures from writing. Moreover, many used multiplicity (words must be composed of enough letters) and variety (words can not be constructed with the same letters) in determining whether or not the written symbols were "words that big people could read". Nonetheless, this measure did not distinguish between the two groups. Therefore, similar to the findings reported for environmental print, distinguishing among the structural qualities, rather than the phonetic qualities of written text, may not play a substantial role in promoting young children's understanding of written language.

In sum, the findings in this study repeatedly indicate that even as early as forty-eight months of age, children from low-income homes are at a distinct disadvantage when compared to their middle-class peers on many language concepts. Moreover, by the end of preschool, children from poverty continue to fall further behind their middle-class age-mates in understanding language. These linguistic differences are noteworthy, and reveal a restricted exposure to early literacy experiences that is likely to impair low-SES preschoolers' future literacy development. Therefore, it is critical that early childhood educators, particularly those serving low-income populations, help foster more meaningful literacy experiences in the home as well as at preschool.

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TABLE 1. Means and standard deviations for language concepts of low-and middle- class preschoolers - fall Assessment (N=64)

	Low SES		Middle SES		
	M	SD	M	SD	t
Letter Names (total=26)	3.55	5.40	9.29	7.71	-3.47**
Letter Sounds (total=24)	.15	.62	1.84	4.00	-2.39*
Invented Spelling (total=56)	14.06	5.59	17.13	7.63	-1.84
Syllables - Words (total=5)	3.00	1.89	4.45	1.26	-3.64**
Phonemes - Words (total=5)	.15	.44	.81	1.35	-2.57**
Environmental Print (total=10)	4.61	2.09	5.42	1.54	-1.76
Identify Objects (total=10)	2.21	1.39	3.81	1.47	-4.47**
Identify Function (total=10)	3.67	1.73	4.81	1.52	-2.80**
Identify Readable Print (total=15)	9.21	1.80	8.87	1.98	.72

**p < .01

TABLE 2. Means and standard deviations for language concepts of low- and middle- class preschoolers - spring assessment (N=60)

	Low SES		Middle SES		
	M	SD	M	SD	t
Letter Names (total=26)	4.72	5.59	15.68	6.76**	-6.82**
Letter Sounds (total=24)	.10	.31	5.65	5.63**	-5.47**
Invented Spell (total=56)	19.10	3.90	23.03	7.19**	-2.65**
Syllables (total=5)	3.72	1.69	4.74	.51**	-3.11**
Phonemes (total=5)	.45	.78	1.48	1.75**	-2.99**
Environment Pri (total=10)	4.72	2.30	5.48	1.91	1.40
Identify Obj (total=10)	2.90	1.32	5.03	1.52**	-5.80**
Explain Func (total=10)	4.62	2.04	6.13	1.26**	-3.42**
Identify Print (total=15)	9.62	2.19	10.13	1.91	-.96

**p < .01.

Figure 1: Rank Order of Total Literacy Knowledge Among Low-and Middle-Class Preschoolers